

NAME OF WORK:- Improvements to roads and  
drains of Maruthinagara in ward no. 08 kodigehalli

**First and Final Bill**  
**Quality Control Reports**



| QC ABSTRACT                                                                              |                                   |                                         |                            |                   |                          |                           |
|------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------|----------------------------|-------------------|--------------------------|---------------------------|
| NAME OF WORK: Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli |                                   |                                         |                            |                   |                          |                           |
| SL NO                                                                                    | Item Of Work                      | Name of Test                            | Frequency of Test/Quantity | Executed Quantity | Number of Tests Required | Number of Tests Conducted |
| <b>Materials</b>                                                                         |                                   |                                         |                            |                   |                          |                           |
| 1                                                                                        | Cement                            | Fineness by dry sieving                 | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Fineness by Air permeability method     | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Density                                 | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Standard Consistency                    | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Initial Setting time                    | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Final Setting time                      | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Soundness (Le Chatelier's Method)       | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Compressive Strength                    | One Test                   |                   | 1                        | 1                         |
| 2                                                                                        | Coarse aggregate(40 mm down size) | SIEVE ANALYSIS                          | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Flakiness Index                         | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Elongation Index                        | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Specific Gravity                        | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Bulk Density(Loose)                     | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Bulk Density(Compacted)                 | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Water Absorption                        | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | SIEVE ANALYSIS                          | One Test                   |                   | 1                        | 1                         |
| 3                                                                                        | Coarse aggregate(20 mm down size) | Flakiness Index                         | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Elongation Index                        | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Specific Gravity                        | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Bulk Density(Loose)                     | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Bulk Density(Compacted)                 | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Water Absorption                        | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Aggregate crushing Value                | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Aggregate Impact Value                  | One Test                   |                   | 1                        | 1                         |
| 4                                                                                        | Fine aggregate                    | SIEVE ANALYSIS                          | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Water Absorption                        | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Specific Gravity                        | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Material finer than 75 micron           | One Test                   |                   | 1                        | 1                         |
| 5                                                                                        | Steel                             | Bend test                               | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Tensile Test                            | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Yield Test                              | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | ReBend test                             | One Test                   |                   | 1                        | 1                         |
| 6                                                                                        | KERB                              | Core Compressive strength               | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Corrected Cylinder Compressive strength | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Equivalent Cube Compressive strength    | One Test                   |                   | 1                        | 1                         |
| 7                                                                                        | Precast (100mm)                   | Core Compressive Strength               | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Corrected Cylinder Compressive Strength | One Test                   |                   | 1                        | 1                         |
|                                                                                          |                                   | Equivalent Cube Compressive Strength    | One Test                   |                   | 1                        | 1                         |
| 8                                                                                        | RMC(M20)                          | Compressive Strength(7days and 28days)  | 7 set /150-200 cum         | 172.84            | 14                       | 14                        |

*[Signature]*

*[Signature]*

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore



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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2020-12-30-77 Date: 05-11-20

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 02-11-20

Sample Type : Birla Super 53grade

Reference to BIS codes : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,  
IS 4031 (Part 1,2 3,4,5, 6,11):1988  
IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4  
IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5  
IS 4031 Part 3, Determination of Soundness, Clause 5, Clause 6  
IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5  
IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5  
IS 4031 Part 11, DETERMINATION OF DENSITY , Clause 6

Date of test : 03-11-20

Environmental Conditions during test : Temperature: 26°C  
Humidity: 72%

| Sl.No. | Physical properties                                       | Results     | Requirement as per IS 12269: 2013 |
|--------|-----------------------------------------------------------|-------------|-----------------------------------|
| 1      | Fineness by dry sieving (%)                               | 2.46        | —                                 |
| 2      | Finess by Air permeablity method (m <sup>2</sup> /kg,Min) | 255.8       | 225m <sup>2</sup> /kg, Min        |
| 3      | Density (gm/cc)                                           | 3.12        | —                                 |
| 4      | Standard Consistency (%)                                  | 28.5%       | Not specified                     |
| 5      | Initial Setting time                                      | 175 minutes | Not less than 30 minutes          |
| 6      | Final Setting time                                        | 280 minutes | Not more than 600 minutes         |
| 7      | Soundness (Le Chatelier's Method)                         | 1mm         | Not more than 10 mm               |

\* The results obtained are satisfactory as per standard requirements.

  
Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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R KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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**TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade**

**Lab ID** : CP-2020-12-30-77 **Date:** 01-12-20

**Project Name** : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

**Agency** : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/155/2019-20

**Date of Receipt** : 02-11-20

**Sample Type** : Birla Super 53grade

**Reference to BIS codes** : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,  
IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5  
IS 4031 Part 6, Determination of Compressive Strength, Clause 6

**Date of test** : 03-11-20

**Environmental Conditions during test** : Temperature: 26°C  
Humidity: 72%

| Compressive Strength |                     |                       |                                    |
|----------------------|---------------------|-----------------------|------------------------------------|
| Sl.No.               | Physical properties | Results               | Requirement as per IS 12269: 2013  |
| 1                    | 3 Days              | 28.9N/mm <sup>2</sup> | Not less than 27 N/mm <sup>2</sup> |
| 2                    | 7 Days              | 39.2N/mm <sup>2</sup> | Not less than 37 N/mm <sup>2</sup> |
| 3                    | 28 Days             | 58.4N/mm <sup>2</sup> | Not less than 53 N/mm <sup>2</sup> |

\* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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R. KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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## TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2020-12-30-77 Date: 05-11-20  
Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli  
Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.  
Customer's Reference : BBMP/EE/BTP/WO/155/2019-20  
Date of Receipt : 02-11-20  
Sample Type : 40mm down size coarse aggregate  
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates )  
IS: 2386 :1963(Part - 1,3,4) RA2011  
IS 2386 Part 1: Particle Size and Shape  
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption  
IS 2386 Part 4: Mechanical Properties  
Date of test : 02-11-20

### SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|------------|-----------|------------------------|-----------------------------------|------------------------------|-----------|-----------------------------|
| 1          | 80 mm     | 0                      | 0                                 | 0.0                          | 100       | 100                         |
| 2          | 40 mm     | 234                    | 234                               | 1.6                          | 98.4      | 90-100                      |
| 3          | 20 mm     | 5334                   | 5568                              | 37.1                         | 62.9      | 30-70                       |
| 4          | 10 mm     | 4788                   | 10356                             | 69.0                         | 31.0      | 10-35                       |
| 5          | 4.75 mm   | 4354                   | 14710                             | 98.1                         | 1.9       | 0-5                         |
| 6          | Pan       | 290                    | 15000                             | 100.0                        | 0         | ---                         |

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Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore





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**TEST REPORT ON COARSE AGGREGATES**

Lab ID

:

CP-2020-12-30-77

Date: 05-11-20

**PHYSICAL PROPERTIES**

| Sl.no | Tests                          | Result | Requirements as per IS:383-2016                                                              |
|-------|--------------------------------|--------|----------------------------------------------------------------------------------------------|
| 1     | Flakiness Index(%)             | 12.2   | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2     | Elongation Index(%)            | 11.6   |                                                                                              |
| 3     | Specific Gravity               | 2.69   | —                                                                                            |
| 4     | Bulk Density(Loose) (Kg/l)     | 1.54   | —                                                                                            |
| 5     | Bulk Density(Compacted) (Kg/l) | 1.58   | —                                                                                            |
| 6     | Water Absorption(%)            | 0.24   | —                                                                                            |

\* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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RKARTHIK RECHAN  
Authorized Signatory  
Quality Manager



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**TEST REPORT ON COARSE AGGREGATES**

Lab ID : CP-2020-12-30-77 Date: 04-11-20

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 02-11-20

Sample Type/ Size : 20mm down size coarse aggregate

Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates )  
IS: 2386 :1963(Part - 1,3,4) RA2011  
IS 2386 Part 1: Particle Size and Shape  
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption  
IS 2386 Part 4: Mechanical Properties

Date of test : 02-11-20

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:**

Total weight taken : 5000 grams

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|------------|-----------|------------------------|-----------------------------------|------------------------------|-----------|-----------------------------|
| 1          | 40 mm     | 0                      | 0                                 | 0                            | 100       | 100                         |
| 2          | 20 mm     | 245                    | 245                               | 4.9                          | 95.1      | 90-100                      |
| 3          | 10 mm     | 2675                   | 2920                              | 58.4                         | 41.6      | 25-55                       |
| 4          | 4.75 mm   | 1798                   | 4718                              | 94.4                         | 5.6       | 0-10                        |
| 5          | Pan       | 282                    | 5000                              | 100                          | 0         | -                           |

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Kodigehalli Sub Division  
BBMP, Bangalore





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**TEST REPORT ON COARSE AGGREGATES**

Lab ID

: CP-2020-12-30-77

Date: 04-11-20

**PHYSICAL PROPERTIES**

| Sl.no | Tests                          | Result | Requirements as per IS:383-2016                                                                                                                                                                                                               |
|-------|--------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Flakiness Index(%)             | 11.4   | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate                                                                                                                                                  |
| 2     | Elongation Index(%)            | 11.2   |                                                                                                                                                                                                                                               |
| 3     | Specific Gravity               | 2.64   | —                                                                                                                                                                                                                                             |
| 4     | Bulk Density(Loose) (Kg/l)     | 1.52   | —                                                                                                                                                                                                                                             |
| 5     | Bulk Density(Compacted) (Kg/l) | 1.56   | —                                                                                                                                                                                                                                             |
| 6     | Water Absorption(%)            | 0.24   | —                                                                                                                                                                                                                                             |
| 7     | Aggregate crushing Value(%)    | 22.6   | Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8     | Aggregate Impact Value(%)      | 21.8   | 30% for Aggregates to be used in concrete for wearing Surface,<br>45% for Aggregates to be used in concrete other than for wearing Surface.                                                                                                   |

\* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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Authorized Signature  
Quality Manager

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## TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2020-12-30-77 Date: 04-11-20

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 02-11-20

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)  
IS: 2386 :1963(Part - 1, 3) RA2012  
IS 2386 Part 1: Particle Size and Shape  
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption

Date of test : 02-11-20

Total weight taken : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 |                 |                  |                 |
|-------|------------|-----------------------|----------------------------------|------------------------------|-----------|--------------------------------|-----------------|------------------|-----------------|
|       |            |                       |                                  |                              |           | Grading Zone I                 | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1     | 10 mm      | 0                     | 0                                | 0.0                          | 100.0     | 100                            | 100             | 100              | 100             |
| 2     | 4.75 mm    | 82                    | 82                               | 8.2                          | 91.8      | 90-100                         | 90-100          | 90-100           | 95-100          |
| 3     | 2.36 mm    | 165                   | 247                              | 24.7                         | 75.3      | 60-95                          | 75-100          | 85-100           | 95-100          |
| 4     | 1.18 mm    | 177                   | 424                              | 42.4                         | 57.6      | 30-70                          | 55-90           | 75-100           | 90-100          |
| 5     | 600 micron | 182                   | 606                              | 60.6                         | 39.4      | 15-34                          | 35-59           | 60-79            | 80-100          |
| 6     | 300 micron | 177                   | 783                              | 78.3                         | 21.7      | 5-20                           | 8-30            | 12-40            | 15-50           |
| 7     | 150 micron | 134                   | 917                              | 91.7                         | 8.3       | 0-10                           | 0-10            | 0-10             | 0-15            |
| 8     | Pan        | 83                    | 1000                             | 100.0                        | 0.0       | ---                            | ---             | ---              | ---             |

Result : The tested Sample Conforms to Grading Zone II

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Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore





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Certificate No.: TC-5548

## TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2020-12-30-77

Date: 04-11-20

### PHYSICAL PROPERTIES

| Sl.no | Tests                            | Result | Requirements as per IS 383:2016                                                                                                             |
|-------|----------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Water Absorption(%)              | 1.86   | —                                                                                                                                           |
| 2     | Specific Gravity                 | 2.59   | —                                                                                                                                           |
| 3     | Material finer than 75 micron(%) | 7.8    | Uncrushed fine Aggregate Max 3%,<br>Crushed Fine aggregate Max 15%,<br>Mixed Fine aggregate Max 12%,<br>Manufactured Fine aggregate Max 10% |

\* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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R KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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M: 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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## TEST RESULTS OF STEEL

Lab ID : CP-2020-12-30-77 Date: 12-11-20

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 11-11-20

Sample Type : Sunvik

Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.

Date of test: : 11-11-20

| Sl.No | Identification of sample | Grade of the sample | Diameter of the steel bar | Weight of the sample | Yield stress         | Tensile strength     | Elongation | Bend test    | Rebend test  |
|-------|--------------------------|---------------------|---------------------------|----------------------|----------------------|----------------------|------------|--------------|--------------|
|       |                          |                     | (mm)                      | (kg/m)               | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> ) | (%)        |              |              |
| 1     | Sunvik                   | Fe500               | 8                         | 0.391                | 512                  | 652                  | 20.0%      | Satisfactory | Satisfactory |
| 2     | Sunvik                   | Fe500               | 10                        | 0.616                | 528                  | 672                  | 20.0%      | Satisfactory | Satisfactory |

\* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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R. KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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## TEST REPORT OF PRECAST COVER SLAB

Date: 05-12-20

Lab ID : CP-2020-12-30-77

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 01-12-20

Sample Type /Size : Precast Cover Slab (100mm)

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 01/12/2020

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area    | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---------|---------------------|----------------------|--------------------|--------------------|---------|--------------|---------------------------|-----------------------------------------|--------------------------------------|
|         |                     | (mm)                 | (mm)               | (kg)               | (Sq.mm) | (KN)         | (N/mm <sup>2</sup> )      | (N/mm <sup>2</sup> )                    | (N/mm <sup>2</sup> )                 |
| 1       | Cover Slab-1        | 75.51                | 100.48             | 1.116              | 4477    | 80.9         | 18.1                      | 16.8                                    | 21.0                                 |
| 2       | Cover Slab-2        | 75.49                | 100.52             | 1.122              | 4475    | 82.3         | 18.4                      | 17.1                                    | 21.4                                 |
| 3       | Cover Slab-3        | 75.50                | 100.51             | 1.118              | 4476    | 81.5         | 18.2                      | 16.9                                    | 21.2                                 |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*  
 Assistant Executive Engineer  
 Kodigehalli Sub Division  
 BBMP, Bangalore

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*[Signature]*  
 R KARTHIK RECHAN  
 Authorized Signatory  
 Quality Manager

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## TEST REPORT OF CEMENT CONCRETE KERB STONE

Lab ID : CP-2020-12-30-77 Date: 05-12-20

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 01-12-20

Sample Type /Size : CC Kerb Stone/ 450\*200\*400mm

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 01/12/2020

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area    | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---------|---------------------|----------------------|--------------------|--------------------|---------|--------------|---------------------------|-----------------------------------------|--------------------------------------|
|         |                     | (mm)                 | (mm)               | Kg                 | (Sq.mm) | (KN)         | (N/mm <sup>2</sup> )      | (N/mm <sup>2</sup> )                    | (N/mm <sup>2</sup> )                 |
| 1       | A                   | 150.01               | 200.51             | 3.164              | 17670   | 182.1        | 10.3                      | 10.3                                    | 12.9                                 |
| 2       | B                   | 150.03               | 200.49             | 3.193              | 17675   | 185.2        | 10.5                      | 10.5                                    | 13.1                                 |
| 3       | C                   | 150.01               | 200.50             | 3.115              | 17670   | 185.1        | 10.5                      | 10.5                                    | 13.1                                 |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*  
 Assistant Executive Engineer  
 Kodigehalli Sub Division  
 BBMP, Bangalore

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*[Signature]*  
**R KARTHIK RECHAN**  
 Authorized Signatory  
 Quality Manager

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## TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2020-12-30-77 Date: 19/11/2020

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 17-11-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 19/11/2020

| Sl. No. | Identification Mark        | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen      | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|---------|----------------------------|-------------------|-----------------|-----------------|--------------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
|         |                            |                   |                 |                 | (mm)                           | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| 1       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 151.17 X<br>150.95 X<br>151.08 | 22819                | 8.325                | 426.2        | 18.7                 | 18.4                         |
| 2       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 151.94 X<br>150.67 X<br>150.67 | 22892                | 8.068                | 426.1        | 18.6                 |                              |
| 3       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 149.51 X<br>151.17 X<br>150.58 | 22601                | 8.571                | 407.7        | 18.0                 |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

FOR CIVIL Pro.



R KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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\*\*\*\*End of Report\*\*\*\*

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL  
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Format No: CP/TF/01

## TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2020-12-30-77 Date: 10/12/2020

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 17-11-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 10/12/2020

| Sl. No. | Identification Mark        | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen      | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|---------|----------------------------|-------------------|-----------------|-----------------|--------------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
|         |                            |                   |                 |                 | (mm)                           | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| 1       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 151.31 X<br>149.57 X<br>150.09 | 22631                | 8.221                | 532.8        | 23.5                 | 23.2                         |
| 2       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 150.24 X<br>150.35 X<br>149.07 | 22589                | 8.531                | 500.7        | 22.2                 |                              |
| 3       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 150.56 X<br>151.14 X<br>150.50 | 22756                | 8.799                | 544.1        | 23.9                 |                              |

\*The results obtained are satisfactory as per standard requirements.

*[Signature]*

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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R. KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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AN ISO 9001 : 2008 COMPANY & NABL ACCREDITED LABORATORY AS PER ISO/IEC 17025:2005

# 4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: TC-5548

Format No: CP/TF/01

## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 19/11/2020

Lab ID : CP-2020-12-30-77

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 17-11-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 19/11/2020

| Sl. No. | Identification Mark        | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|---------|----------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
|         |                            |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| 1       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 150.62 X                  | 22486                | 8.325                | 416.6        | 18.5                 | 18.4                         |
|         |                            |                   |                 |                 | 149.29 X                  |                      |                      |              |                      |                              |
|         |                            |                   |                 |                 | 151.25                    |                      |                      |              |                      |                              |
| 2       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 150.16 X                  | 22664                | 8.068                | 417.5        | 18.4                 |                              |
|         |                            |                   |                 |                 | 150.93 X                  |                      |                      |              |                      |                              |
|         |                            |                   |                 |                 | 150.25                    |                      |                      |              |                      |                              |
| 3       | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 150.40 X                  | 22481                | 8.571                | 411.3        | 18.3                 |                              |
|         |                            |                   |                 |                 | 149.47 X                  |                      |                      |              |                      |                              |
|         |                            |                   |                 |                 | 151.25                    |                      |                      |              |                      |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

FOR CIVIL Pro.



R KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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\*\*\*\*End of Report\*\*\*\*

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL  
GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES |



Format No: CP/TF/01

## TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2020-12-30-77 Date: 10/12/2020

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 17-11-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 10/12/2020

| Date of test |                            | :                 |                 | 10/12/2020      |                           |                      |                      |              |                      |                              |
|--------------|----------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
| Sl. No.      | Identification Mark        | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|              |                            |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| 1            | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 151.23 X                  | 22646                | 8.221                | 524.5        | 23.2                 | 23.0                         |
|              |                            |                   |                 |                 | 149.75 X                  |                      |                      |              |                      |                              |
|              |                            |                   |                 |                 | 151.94                    |                      |                      |              |                      |                              |
| 2            | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 151.21 X                  | 22774                | 8.531                | 505.8        | 22.2                 |                              |
|              |                            |                   |                 |                 | 150.61 X                  |                      |                      |              |                      |                              |
|              |                            |                   |                 |                 | 150.48                    |                      |                      |              |                      |                              |
| 3            | Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 150.36 X                  | 22837                | 8.799                | 537.8        | 23.6                 |                              |
|              |                            |                   |                 |                 | 151.88 X                  |                      |                      |              |                      |                              |
|              |                            |                   |                 |                 | 151.69                    |                      |                      |              |                      |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*  
 Assistant Engineer  
 Kodigehalli Sub Division  
 BBMP, Bangalore

FOR CIVIL Pro.



*[Signature]*  
 R KARTHIK RECHAN  
 Authorized Signatory  
 Quality Manager

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\*\*\*\*End of Report\*\*\*\*



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## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 19/11/2020

Lab ID : CP-2020-12-30-77

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 17-11-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 19/11/2020

| of test : 19/11/2020       |                   |                 |                 |                           |                      |                      |              |                      |                              |
|----------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
| Identification Mark        | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|                            |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 150.34 X                  | 22598                | 8.325                | 419.9        | 18.6                 | 18.3                         |
|                            |                   |                 |                 | 150.32 X                  |                      |                      |              |                      |                              |
|                            |                   |                 |                 | 149.21                    |                      |                      |              |                      |                              |
| Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 150.49 X                  | 22758                | 8.068                | 412.4        | 18.1                 |                              |
|                            |                   |                 |                 | 151.23 X                  |                      |                      |              |                      |                              |
|                            |                   |                 |                 | 150.79                    |                      |                      |              |                      |                              |
| Drain Bottom Slab Concrete | M20               | 12/11/2020      | 19/11/2020      | 150.51 X                  | 22721                | 8.571                | 410.9        | 18.1                 |                              |
|                            |                   |                 |                 | 150.97 X                  |                      |                      |              |                      |                              |
|                            |                   |                 |                 | 151.69                    |                      |                      |              |                      |                              |

The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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R. KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 10/12/2020

Lab ID : CP-2020-12-30-77

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 17-11-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 10/12/2020

| : 10/12/2020               |                   |                 |                 |                           |                      |                      |              |                      |                              |
|----------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
| Identification Mark        | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|                            |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 149.47 X                  | 22327                | 8.221                | 533.3        | 23.9                 | 23.4                         |
|                            |                   |                 |                 | 149.37 X                  |                      |                      |              |                      |                              |
|                            |                   |                 |                 | 150.03                    |                      |                      |              |                      |                              |
| Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 149.08 X                  | 22548                | 8.531                | 518.1        | 23.0                 |                              |
|                            |                   |                 |                 | 151.25 X                  |                      |                      |              |                      |                              |
|                            |                   |                 |                 | 150.16                    |                      |                      |              |                      |                              |
| Drain Bottom Slab Concrete | M20               | 12/11/2020      | 10/12/2020      | 149.80 X                  | 22596                | 8.799                | 525.5        | 23.3                 |                              |
|                            |                   |                 |                 | 150.84 X                  |                      |                      |              |                      |                              |
|                            |                   |                 |                 | 151.48                    |                      |                      |              |                      |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

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*[Signature]*  
R KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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\*\*\*\*End of Report\*\*\*\*



Format No: CP/TF/01

## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 24/11/2020

Report ID : CP-2020-12-30-77

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Client : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 19-11-20

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 24/11/2020

| of test : 24/11/2020     |                   |                 |                 |                           |                      |                      |              |                      |                              |      |      |
|--------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|------|------|
| Identification Mark      | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |      |      |
|                          |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |      |      |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 24/11/2020      | 150.70 X                  | 22512                | 8.325                | 416.9        | 18.5                 | 18.7                         |      |      |
|                          |                   |                 |                 | 149.38 X                  |                      |                      |              |                      |                              |      |      |
|                          |                   |                 |                 | 149.78                    |                      |                      |              |                      |                              |      |      |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 24/11/2020      | 150.64 X                  | 22470                | 8.068                | 423.0        | 18.8                 |                              | 18.7 |      |
|                          |                   |                 |                 | 149.16 X                  |                      |                      |              |                      |                              |      |      |
|                          |                   |                 |                 | 151.79                    |                      |                      |              |                      |                              |      |      |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 24/11/2020      | 151.96 X                  | 22716                | 8.571                | 426.2        | 18.8                 |                              |      | 18.7 |
|                          |                   |                 |                 | 149.49 X                  |                      |                      |              |                      |                              |      |      |
|                          |                   |                 |                 | 149.33                    |                      |                      |              |                      |                              |      |      |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore



FOR CIVIL Pro.

*[Signature]*  
R KARTHIK RECHAN  
Authorized Signatory  
Quality Manager



Format No: CP/TF/01

## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 24/11/2020

ID : CP-2020-12-30-77  
 Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli  
 Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.  
 Customer's Reference : BBMP/EE/BTP/WO/155/2019-20  
 Date of Receipt : 19-11-20  
 Customer ID : Drain Side Wall Concrete  
 Sample Type /Size : 150X150X150 mm  
 Sample grade/Age : M20 / 7 Days Compressive Strength  
 Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5  
 Date of test : 24/11/2020

| of test : 24/11/2020     |                   |                 |                 |                           |                      |                      |              |                      |                              |
|--------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
| Identification Mark      | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|                          |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 24/11/2020      | 150.37 X                  | 22667                | 8.325                | 412.2        | 18.2                 | 18.4                         |
|                          |                   |                 |                 | 150.74 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 150.38                    |                      |                      |              |                      |                              |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 24/11/2020      | 150.89 X                  | 22756                | 8.068                | 432.0        | 19.0                 |                              |
|                          |                   |                 |                 | 150.81 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 150.60                    |                      |                      |              |                      |                              |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 24/11/2020      | 149.60 X                  | 22393                | 8.571                | 405.4        | 18.1                 |                              |
|                          |                   |                 |                 | 149.69 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 149.93                    |                      |                      |              |                      |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*  
 Assistant Executive Engineer  
 Kodigehalli Sub Division  
 BBMP, Bangalore



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*[Signature]*  
 R KARTHIK RECHAN  
 Authorized Signatory  
 Quality Manager

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## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 15/12/2020

**CP-2020-12-30-77**  
**Project Name** : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli  
**Client** : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.  
**Customer's Reference** : BBMP/EE/BTP/WO/155/2019-20  
**Date of Receipt** : 19-11-20  
**Customer ID** : Drain Side Wall Concrete  
**Sample Type /Size** : 150X150X150 mm  
**Sample grade/Age** : M20 / 28 Days Compressive Strength  
**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5  
**Date of test** : 15/12/2020

| of test : 15/12/2020     |                   |                 |                 |                           |                      |                      |              |                      |                              |
|--------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
| Identification Mark      | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|                          |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 15/12/2020      | 149.99 X                  | 22655                | 8.221                | 525.2        | 23.2                 | 22.9                         |
|                          |                   |                 |                 | 151.04 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 150.22                    |                      |                      |              |                      |                              |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 15/12/2020      | 149.53 X                  | 22305                | 8.531                | 493.7        | 22.1                 |                              |
|                          |                   |                 |                 | 149.16 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 150.33                    |                      |                      |              |                      |                              |
| Drain Side Wall Concrete | M20               | 17/11/2020      | 15/12/2020      | 150.61 X                  | 22467                | 8.799                | 525.9        | 23.4                 |                              |
|                          |                   |                 |                 | 149.18 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 150.64                    |                      |                      |              |                      |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

Assistant Executive Engineer  
 Kodigehalli Sub Division  
 BBMP, Bangalore

FOR CIVIL Pro.



**R KARTHIK RECHAN**  
 Authorized Signatory  
 Quality Manager



Format No: CP/TF/01

## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 25/11/2020

ID : CP-2020-12-30-77  
 Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli  
 Client : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.  
 Customer's Reference : BBMP/EE/BTP/WO/155/2019-20  
 Date of Receipt : 20-11-20  
 Customer ID : Drain Side Wall Concrete  
 Sample Type /Size : 150X150X150 mm  
 Sample grade/Age : M20 / 7 Days Compressive Strength  
 Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5  
 Date of test : 25/11/2020

of test : 25/11/2020

| Identification Mark      | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |      |      |
|--------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|------|------|
|                          |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |      |      |
| Drain Side Wall Concrete | M20               | 18/11/2020      | 25/11/2020      | 151.64 X                  | 23012                | 8.325                | 433.5        | 18.8                 | 18.7                         |      |      |
|                          |                   |                 |                 | 151.75 X                  |                      |                      |              |                      |                              |      |      |
|                          |                   |                 |                 | 149.86                    |                      |                      |              |                      |                              |      |      |
| Drain Side Wall Concrete | M20               | 18/11/2020      | 25/11/2020      | 149.01 X                  | 22483                | 8.068                | 416.5        | 18.5                 |                              | 18.7 |      |
|                          |                   |                 |                 | 150.88 X                  |                      |                      |              |                      |                              |      |      |
|                          |                   |                 |                 | 151.01                    |                      |                      |              |                      |                              |      |      |
| Drain Side Wall Concrete | M20               | 18/11/2020      | 25/11/2020      | 151.69 X                  | 22811                | 8.571                | 429.7        | 18.8                 |                              |      | 18.7 |
|                          |                   |                 |                 | 150.38 X                  |                      |                      |              |                      |                              |      |      |
|                          |                   |                 |                 | 149.93                    |                      |                      |              |                      |                              |      |      |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

Assistant Executive Engineer  
 Kodigehalli Sub Division  
 BBMP, Bangalore

*[Signature]*

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R. KARTHIK RECHAN  
 Authorized Signatory  
 Quality Manager

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## TEST REPORT OF CEMENT CONCRETE CUBES

**ID** : CP-2020-12-30-77 **Date:** 16/12/2020  
**Project Name** : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli  
**Agency** : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.  
**Customer's Reference** : BBMP/EE/BTP/WO/155/2019-20  
**Date of Receipt** : 20-11-20  
**Customer ID** : Drain Side Wall Concrete  
**Sample Type /Size** : 150X150X150 mm  
**Sample grade/Age** : M20 / 28 Days Compressive Strength  
**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5  
**Date of test** : 16/12/2020

| Sl. No. | Identification Mark      | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|---------|--------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
|         |                          |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| 1       | Drain Side Wall Concrete | M20               | 18/11/2020      | 16/12/2020      | 149.59 X                  | 22528                | 8.221                | 519.9        | 23.1                 | 23.1                         |
|         |                          |                   |                 |                 | 150.60 X                  |                      |                      |              |                      |                              |
|         |                          |                   |                 |                 | 150.10                    |                      |                      |              |                      |                              |
| 2       | Drain Side Wall Concrete | M20               | 18/11/2020      | 16/12/2020      | 150.70 X                  | 22841                | 8.531                | 519.9        | 22.8                 |                              |
|         |                          |                   |                 |                 | 151.56 X                  |                      |                      |              |                      |                              |
|         |                          |                   |                 |                 | 149.75                    |                      |                      |              |                      |                              |
| 3       | Drain Side Wall Concrete | M20               | 18/11/2020      | 16/12/2020      | 149.30 X                  | 22492                | 8.799                | 530.9        | 23.6                 |                              |
|         |                          |                   |                 |                 | 150.65 X                  |                      |                      |              |                      |                              |
|         |                          |                   |                 |                 | 151.07                    |                      |                      |              |                      |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*  
 Assistant Executive Engineer  
 Kodigehalli Sub Division  
 BBMP, Bangalore



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*[Signature]*  
**R KARTHIK RECHAN**  
 Authorized Signatory  
 Quality Manager

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Format No: CP/TF/01

## TEST REPORT OF CEMENT CONCRETE CUBES

**CP-2020-12-30-77** **Date: 25/11/2020**  
**Project Name** : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli  
**Client** : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.  
**Customer's Reference** : BBMP/EE/BTP/WO/155/2019-20  
**Date of Receipt** : 20-11-20  
**Customer ID** : Drain Side Wall Concrete  
**Sample Type /Size** : 150X150X150 mm  
**Sample grade/Age** : M20 / 7 Days Compressive Strength  
**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5  
**Date of test** : 25/11/2020

| : 25/11/2020             |                   |                 |                 |                           |                      |                      |              |                      |                              |
|--------------------------|-------------------|-----------------|-----------------|---------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
| Identification Mark      | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|                          |                   |                 |                 | (mm)                      | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| Drain Side Wall Concrete | M20               | 18/11/2020      | 25/11/2020      | 150.97 X                  | 22759                | 8.325                | 415.4        | 18.3                 | 18.7                         |
|                          |                   |                 |                 | 150.75 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 150.45                    |                      |                      |              |                      |                              |
| Drain Side Wall Concrete | M20               | 18/11/2020      | 25/11/2020      | 151.70 X                  | 22725                | 8.068                | 430.4        | 18.9                 |                              |
|                          |                   |                 |                 | 149.81 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 149.63                    |                      |                      |              |                      |                              |
| Drain Side Wall Concrete | M20               | 18/11/2020      | 25/11/2020      | 149.17 X                  | 22664                | 8.571                | 426.0        | 18.8                 |                              |
|                          |                   |                 |                 | 151.93 X                  |                      |                      |              |                      |                              |
|                          |                   |                 |                 | 150.41                    |                      |                      |              |                      |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*  
 Assistant Executive Engineer  
 Kodigehalli Sub Division  
 BBMP, Bangalore



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**KARTHIK RECHAN**  
 Authorized Signatory  
 Quality Manager

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\*\*\*\*End of Report\*\*\*\*



Format No: CP/TF/01

## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 16/12/2020

Lab ID : CP-2020-12-30-77

Project Name : Improvements to Roads and Drains of Maruthinagara in Ward No.8 Kodigehalli

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/155/2019-20

Date of Receipt : 20-11-20

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 16/12/2020

| Sl. No. | Identification Mark      | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen      | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|---------|--------------------------|-------------------|-----------------|-----------------|--------------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
|         |                          |                   |                 |                 | (mm)                           | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| 1       | Drain Side Wall Concrete | M20               | 18/11/2020      | 16/12/2020      | 149.95 X<br>151.12 X<br>150.30 | 22660                | 8.221                | 543.0        | 24.0                 | 23.6                         |
| 2       | Drain Side Wall Concrete | M20               | 18/11/2020      | 16/12/2020      | 151.35 X<br>149.65 X<br>149.68 | 22650                | 8.531                | 519.7        | 22.9                 |                              |
| 3       | Drain Side Wall Concrete | M20               | 18/11/2020      | 16/12/2020      | 150.87 X<br>150.46 X<br>150.42 | 22700                | 8.799                | 542.5        | 23.9                 |                              |

The results obtained are satisfactory as per standard requirements.

*[Signature]*

*[Signature]*  
Assistant Executive Engineer  
Kodigehalli Sub Division  
BBMP, Bangalore

FOR CIVIL Pro.



*[Signature]*  
R KARTHIK RECHAN  
Authorized Signatory  
Quality Manager

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\*\*\*\*End of Report\*\*\*\*